PATENT

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	:	
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Serial No. 09/934,521	:	Examiner: Mohamed Charioui
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For: METHOD AND SYSTEM OF PRODUCING ANALYTICAL RESULT	:	

Verification of Translation

I hereby declare and state:

that I am thoroughly conversant in both the Japanese language and the English language; and

that the attached document represents a true and complete English translation of Japanese Patent Application No. 2000-255338.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signed this 2nd day of August, 2005.

Verifier: Kiyoe K. Kabashima

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[Name Of Document] Specification

[Title Of Invention] Method of providing analyzing service and analyzing service providing system

[Claims]

[Claim 1]

A method of providing an analyzing service, in which a physiological sample or a part of physiology of a subject measured with a measurement device is analyzed for each test item, the method comprising:

transmitting from the measurement device via a network to a predetermined server measurement data of said subject, identification information of said subject, said test item, and an address to which an analytical result obtained from said measurement data should be sent;

said server analyzing said measurement data for said test item;

transmitting from said server to said address said analytical result, the identification information of said subject, and said test item; and

outputting from an output terminal that corresponds to said address the analytical result for each subject and test item.

[Claim 2]

The method of providing analyzing service according to claim 1, wherein

identification information of the measurement device is sent together with said measurement data of the subject from said measurement device to said server, and

said server conducts analysis of the measurement data based on a device type as determined by said identification information.

[Claim 3]

The method of providing analyzing service according to claim 1, further comprising

storing details of a contract regarding the analysis of the subject formed between a user of said measurement device and a provider of said server;

storing said service usage of said analyzing service for each user; and

said server determining an amount to be billed to said user based on said contract details and said service usage.

[Claim 4]

An analyzing service providing device configured to analyze for each test item a physiological sample or a part of physiology of a subject measured with a measurement device, the analyzing service providing device comprising:

receiving means for receiving from said measurement device via a network measurement data of said subject, identification information of said subject, said test item, and an address to which an analytical result obtained from said measurement data should be sent;

analyzing means for conducting an analysis of said measurement data for said test item; and

transmitting means for transmitting to said address via the network said analytical result, the identification information of said subject, and said test item.

[Claim 5]

A computer-readable recording medium in which is recorded an analyzing service providing program to be used in a device that analyzes for each test item a subject's measurement data measured with a measurement device, the analyzing service providing program being for executing:

A; a step of receiving from the measurement device via a network measurement data

of said subject, identification information of said subject, said test item, and an address to which an analytical result obtained from said measurement data should be sent;

B; a step of analyzing said measurement data for said test item; and

C; a step of transmitting to said address said analytical result, the identification information of said subject, and said test item.

[Claim 6]

A measurement device of physiology or a physiological sample configured to measure measurement data of a subject for each test item, the measurement device comprising:

transmission means for transmitting to a predetermined server connected via a network the measurement data of said subject, identification information of said subject, said test item, and an address to which an analytical result obtained from said measurement data should be sent.

[Claim 7]

A recording medium in which is recorded a measurement program of physiology or a physiological sample and which is to be used in a measurement device that measures measurement data of a subject for each test item, the measurement program of physiology or a physiological sample being for executing:

a step of transmitting to a predetermined server connected via a network the measurement data of said subject, identification information of said subject, said test item, and an address to which an analytical result obtained from said measurement data should be sent.

[Detailed Description Of The Invention]

[Technical Field Of The Invention]

The present invention relates to a technology for analyzing measurement data of part of physiology such as electrocardiograms and electrogastrograms, and physiological samples such as blood or urine.

[Prior Art]

In medical institutions such as hospitals and the like, various tests are performed to diagnose physical conditions and diseases of patients. These clinical tests include tests on physiological samples of patients such as blood and urine, and tests performed on part of the physiology, such as electrocardiogram, which is performed on a patient's chest. Measurement devices that are used for such tests normally include a measurement section that measures physiological samples or parts of physiology, and an analysis section that analyzes measurement data. In addition, measurement device is furnished with a display section, a sample processing section, and the like, as needed. The function of measurement device is provided not just by its structural layout such as the measurement principle, but also to a large part by programs that do such things as control and monitor the operation of the measurement device, and programs that analyze measurement data. Thus, different programs may be loaded onto the same measurement devices according to the functions that are needed. These programs are generally upgraded to their most recent version.

[Problems To Be Solved By The Invention]

Although medical institutions need to purchase a measurement device, such measurement devices are normally very expensive. Therefore, it takes at least 2-3 years to recoup the money spent to purchase the device with testing fees. Thus, for medical institutions to perform tests by themselves, a huge initial investment is required, which is an economic burden to medical institutions.

Furthermore, there are times when, before the original cost for the purchase of the measurement device is recouped, measurement items that are requested may change due to

changes in the medical environment, in which case the ability to conduct the measurement for new measurement items must be furnished. In addition, there are also times when more accurate measurement methods on the old measurement items become available, and the ability to conduct the measurement with such new measurement methods must be furnished.

In such cases, it is necessary to deal with the situation by obtaining a newer version of the program of the measurement device, upgrading the structure of the measurement device, or by purchasing a new measurement device. However, it is difficult to flexibly adjust to changes in the needs required of medical institutions.

On the other hand, measurement devices generally include various program versions, so as to meet various needs in tests. Companies that provide support services for such measurement devices have to manage different program versions of each measurement device in order to provide services in a precise manner, which is problematic. For instance, when it turns out that a certain program version has a defect, it is difficult to cope with the situation smoothly unless it is possible to determine in which measurement devices that program version is installed.

An object of the present invention is to allow medical institutions to flexibly adjust to changes in testing needs, which occur due to changes in medical environment, and also to enable precise user support to be provided.

[Means For Solving The Problems]

In order to solve the aforementioned problems, a first aspect of the invention of the present application provides a method of analyzing for each test item a physiological sample or a part of physiology of a subject measured with a measurement device. The method includes.

A: transmitting from the measurement device via a network to a predetermined server measurement data of said subject, identification information of said subject, said test item, and an address to which an analytical result obtained from said measurement data

should be sent,

B: analyzing said measurement data with said server for said test item,

C: transmitting from said server to said address said analytical result, the identification information of said subject, and said test item, and

D: outputting from an output terminal that corresponds to said address the analytical result for each subject and test item.

Explanation follows using blood as an example of the physiological sample. A measurement device for blood and an output device that outputs analytical results are installed at a medical institution. The measurement device and the output device may be substantially effectuated by using one computer, or by using separate computers.

In the server, a program for analyzing measurement data of blood sent from the medical institution is installed. Only measurement of physiological samples and display of analytical results are performed at the medical institution side, and analysis of the measurement data is performed at the server side. In this manner, the processing is distributed between the two sides.

As identification information of the physiological samples, specimen numbers utilized in each medical institution can be utilized. The test item means test items that are measured in blood tests, blood coagulation tests, immunity tests, physiological tests, and so forth. When a plurality of items is to be measured at the same time, the plurality of test items is inputted. Here, the object to be analyzed is not limited to measurement data of physiological samples. It is also possible to send to the server measurement data of a part of physiology, such as electrocardiograms and electrogastrograms, and have the server return the analytical results.

A second aspect of the invention of the present application is, in the method of the first aspect, identification information of the measurement device is sent together with said measurement data of the subject from said measurement device to said server, and said server

conducts analysis of the measurement data based on a device type as determined by said identification information.

The device type refers to the type of device or the version of the measurement program that operates the device. This is because different types of measurement device are often installed in one medical institution, such as when a medical institution has a plurality of different types of measurement devices such as blood cell counting devices and blood coagulation measurement devices. Furthermore, blood cell counting devices require different programs to analyze its measurement data depending on the measurement theory and the measurement program of the device.

A third aspect of the invention of the present application is, in the method of the first aspect, further stores details of a contract regarding the analysis of the subject formed between a user of said measurement device and a provider of said server. In this method, the service usage of the analyzing service is stored for each user. The server then determines an amount to be billed to the user based on the contract details and the service usage.

For instance, a basic service contract provides analyzing service on 3 basic coagulation test items (APTT, PT, Fbg) up to 100 specimens for ¥15,000 per month. Once the number of specimens exceeds 100, an additional fee of ¥200 per specimen is charged. With regards to items outside those covered in the basic contract, the analyzing service on, for instance, TTO is provided for ¥450 per specimen.

A fourth aspect of the invention of the present application is, an analyzing service providing device configured to analyze for each test item a physiological sample or a part of physiology of a subject measured with a measurement device, and includes receiving means, analyzing means, and transmitting means.

The receiving means receives from said measurement device via a network measurement data of said subject, identification information of said subject, said test item,

and an address to which an analytical result obtained from said measurement data should be sent. The analyzing means conducts an analysis of said measurement data for said test item. The transmitting means transmits to said address via the network said analytical result, the identification information of said subject, and said test item.

This device has the function of the server in the aforementioned method of providing analyzing service.

The fifth aspect of the present invention provides a computer-readable recording medium in which is recorded an analyzing service providing program for executing the following steps A-C and which is to be used in a device that analyzes for each test item a subject's measurement data measured with a measurement device.

A; a step of receiving from the measurement device via a network measurement data of said subject, identification information of said subject, said test item, and an address to which an analytical result obtained from said measurement data should be sent;

B; a step of analyzing said measurement data for said test item; and

C; a step of transmitting to said address said analytical result, the identification information of said subject, and said test item.

This is a recording medium in which a program that runs on the analyzing service device of the fifth aspect of the present invention is recorded. Here, the recording medium is, for example, floppy disk, hard disk, semiconductor memory, CD-ROM, DVD, magneto-optical disk (MO), and others, which can be read or written with a computer.

The sixth aspect of the present invention provides a measurement device of physiology or a physiological sample configured to measure measurement data of a subject for each test item. The measurement device includes transmission means for transmitting to a predetermined server connected via a network the measurement data of said subject, identification information of said subject, said test item, and an address to which an analytical result obtained from said measurement data should be sent.

This device corresponds to the measurement device in the aforementioned analyzing service providing method.

The seventh aspect of the present invention provides a recording medium in which is recorded a measurement program of physiology or a physiological sample and which is to be used in a measurement device that measures measurement data of a subject for each test item. The program executes a step of transmitting to a predetermined server connected via a network the measurement data of said subject, identification information of said subject, said test item, and an address to which an analytical result obtained from said measurement data should be sent.

This has the same effect as that of the aforementioned sixth aspect of the present invention.

[Embodiments Of The Invention]

<Overview Of The Invention>

Fig. 1 is a schematic diagram showing an outline of the analyzing service providing system of the present invention. This system is composed of an analysis server 1 and measurement devices 2 that are in medical institutions and connected to the analysis server 1 via a network 3 such as the Internet.

In this analyzing service providing system, the measurement function and the analysis function, which have been conventionally possessed by measurement devices, are divided amongst analysis server 1 and measurement devices 2. Specifically, analysis server 1 possesses an analytical function, and measurement devices 2 possess measurement functions.

Analytical server 1 collects and analyzes measurement data from each measurement device 2, and returns analytical results to each medical institution. The analytical result is provided to each medical institution for a fee in accordance with a contract between a service provider and the medical institution. The service provider and the medical institution enter

into a contract in advance relating to the contents of the analyzing service and its fees.

Preferably, the analytical data service provider provides the measurement devices free of charge, and in return provides analytical results for a fee. By doing so, it is possible to eliminate the burden of the initial investment when the medical institutions purchase the measurement devices. In addition, the service providers only need to provide maintenance to the programs that run in analysis server 1, as far as the analysis programs are concerned. It is also easy for each medical institution to modify contract details as needed, or to replace a measurement device. Thus, it is possible to provide test services flexibly adapted to changes in the needs.

<First Embodiment>

Next, an embodiment of the analyzing service providing system of the present invention will be described in detail.

(1) Construction

(1-1) Entire Framework

Fig. 2 is figure showing the entire framework of the analyzing service providing system of the present embodiment. Only one medical institution is shown in order to make the figure easy to understand. The medical institution has an output terminal 4 and a plurality of measurement devices 2a, 2b, 2c and 2d, which are capable of being connected to a network 3. Measurement devices 2a to 2d and output terminal 4 are connected to a host 6 through an intra-medical institution network 5 such as a LAN or the like. Host 6 controls measurement devices 2 and output terminal 4, and stores information relating to patients' test results, medical histories, medication histories and the like in a patient database 7.

(1-2) Construction of analysis server 1

Fig. 3 is a figure illustrating the details of the functions of analysis server 1, measurement device 2 and output terminal 4. Analysis server 1 has a receiver 11 that receives data from measurement device 2, an analyzer 12 that analyzes the measurement data,

a transmitter 13 that transmits analytical results to output terminal 4, and a charge section 14 that calculates the charge for each medical institution. Analyzer 12 has a plurality of analysis programs, and selects the optimal analysis program for the type of measurement data transmitted.

In addition, analysis server 1 has a user database 15, a contract database 16, and a test database 17. Each medical institution's service usage of the analyzing service is stored in user DB 15. The details of contract between each medical institution and the service provider are stored in contract DB 16. Details on user DB 15 and contract DB 16 are discussed below. Test DB 17 can be provided as needed. This DB stores measurement data that analysis server 1 receives, and their analytical results. In the event that the service provider is the provider of both the measurement devices and the analysis programs, it can make use of the stored data in order to further improve and better the measurement and analytical abilities of its products.

(1-3) Construction of measurement device

Measurement device 2 has a measurement section 21 that measures the specimen, a processing section 22 that creates original data including measurement data and predetermined data, and a transmission section 23 that transmits the original data to analysis server 1. The original data will be described in detail below.

(1-4) Construction of output terminal

Output terminal 4 has a receiver 41 that receives analytical results from analysis server 1, and an output section 42 that outputs analytical results to a display, a printer, or the like. Output section 42 is capable of executing an output program that works with a plurality of analysis programs. Output terminal 4 may be effectuated on the same computer as measurement device 2, or may be effectuated on a separate computer.

(2) Database

(2-1) User DB

Fig. 4 is a conceptual description of the information stored in user DB 15. In this example, user ID, user name, contact person, contract details, and service usage are stored in the user DB.

"User ID" is information for identifying medical institutions on the present system. One user ID is assigned to each medical institution, for example, at the time of contract formation between the service provider and the medical institution.

"User name" is the name of the medical institution, and the "contact person" is the name and department of the person in charge regarding this service.

"Contract details" is stored in contract DB, and is identification information that specifies the details of the contract with the user.

"Actual usage" is the user's usage status of the analyzing service during a fixed period of time, i.e., one month. Both the analytical service ID and the number of times the analyzing service has been used are stored. The analytical service ID is an ID for identifying a test item, and the test item that is included in each ID is described in contract DB 16.

Information other than that illustrated here can be stored in user DB as needed.

(2-2) Contract DB

Fig. 5 is a conceptual description of the information stored in contract DB. In this example, the contract details, analytical services, test items, basic contract flag, basic fees, and maximum numbers of uses are stored in contract DB.

"Contact details" is an identifier that correlates the user with the contract details. For example, the contract details of "Sysmex Hospital" shown in Fig. 4 is identified as "123-4567".

"Analysis service" and the test item identify the details of the analysis service that the user has contracted for. Specifically, a group of test items or one test item is associated with an analysis service. For example in this figure, "C001" indicates analysis of ATT, PT,

and Fbg. Further, "C002" indicates analysis of TTO.

"Basic contract flag" indicates whether it is a test item included in the basic contract. In this figure, APTT, PT and Fbg are included in the basic contract, while TTO is not.

"Basic fee" is the basic monthly fee or a unit analysis fee per specimen if the medical institutions are charged for the use of service monthly.

"Maximum number" is the number of specimens for which the analysis service is provided at the price set by the basic fee.

Information other than that exemplified here can be stored in contract DB as needed.

(3) Data

Next, the data that is transmitted between analysis server 1 and the medical institutions will be explained in detail.

(3-1) Original data transmitted from measurement devices to analysis server

Fig. 6 shows a conceptual explanatory view of the original data transmitted from the measurement devices 2 to analysis server 1. Below, each of the items included this data will be described.

(a) User ID

User ID is identification information that specifies the medical institution, which is the sender of the measurement data. In the event that there is a plurality of medical institutions that can connect to analysis server 1, a user ID is essential information.

(b) Specimen ID

Specimen ID is essential information to allow the medical institution side to associate physiological samples with analytical results. In this example, the specimen IDs that are used by each medical institution are utilized. This is because the analysis server 1 side can identify the physiological samples by combining the user IDs with the specimen IDs.

(c) Device ID

Device ID is identification information that is used to allow the medical institutions

to identify its own measurement devices. By storing the analytical results and the device IDs in association with one another, the drift of the analytical data of each measurement device can be observed, which is desirable.

(d) Parsing order

Parsing order is identifying information assigned at each measurement device to each data, in order to identify data transmitted to analysis server 1. For example, date or a serial number can be used as the parsing order. The parsing order is not necessary, but should be preferably used because it is the information, aside from the user ID or the specimen ID, that can identify transmission data.

(e) Sample classification

In the sample classification, information that identifies the type of physical samples, for example, blood, urine, bone marrow, or the like is written .

(f) Test item

"Test item" is essential information that specifies test item for which the analysis should be ordered.

(g) Measurement items

Measurement items are essential information in order to determine measurement data that is obtained by processing samples. There are cases in which measurement data on a plurality of measurement items are needed in order to obtain a test result for one test item. For example, where a blood test device such as XE-2100 (product of SYSMEX (K.K.)) is utilized, if the test item is the classification of white blood cells into 5 classes, the test results are obtained by conducting two items of measurements, which are classification of white bloods cells into 4 classes and measurement of basophils.

Conversely, there are also cases in which test results on a plurality of test items can be provided from one measurement data. For example, in the aforementioned blood testing device, both red blood cells and blood platelets can be analyzed by the measurement of the

red blood cells.

(h) Device type

In the device type, the type of measurement device, for example, the product number, the model, and the like, which measured the specimen is written. It is information needed for the analysis of the measurement data.

(i) Device version

In the device version, the version of the measurement program that runs on the measurement device is written. This is because devices of the same type may require different analysis methods if their versions are different. It is possible to determine the analysis program used for analysis of the measurement data through combination of the type of device and the device version.

(j) Reply address

In the reply address, the address to which the analytical results are to be sent is written. In this example, the address of the medical institution's output terminal 4 is written as the reply address. When the address of the measurement device 2 is different from that of the output terminal 4, it is necessary to include the reply address in the original data.

(k) Correction value

The correction value is data for preventing variances that occur even when the same samples are measured by measurement device 2. By combining the actually measured data and the correction value, it is possible to conduct accurate analysis. The correction value is setup only in selected measurement devices, depending on differences in the state of the measurement device, the measurement reagent, and the like.

(l) Measurement data

In the measurement data, data measured by measurement device 2 is written.

For instance, in the PT (prothrombin time) measurement, data of the number of seconds and the scattered light-intensity are written.

(3-2) Working data transmitted to output terminal from analysis server

Fig. 7 is a conceptual explanatory view of the working data that is transmitted to output terminal 4 from analysis server 1. In this figure, the user ID, specimen ID, device ID, parsing order, and device type are the same as those discussed above. In analytical data, the analytical results of the measurement data are written. In the case of the aforementioned PT measurement, the time change of the intensity of scattered light is analyzed, and the number of seconds of PT (protothrombin time), which is the coagulation time, is described.

(4) Process flow

Next, in the aforementioned configuration of the analyzing service providing system, the process flow that analysis server 1 executes will be described in detail.

(4-1) Analysis process

Fig. 8 is a flowchart that shows the flow of the analysis process that analysis server 1 executes.

Steps S1 and S2: Measurement device 2 measures the specimens set therein one by one, and transmits the measurement data and the aforementioned predetermined data (hereinafter simply referred to as original data) to analysis server 1. Analysis server 1 selects an analysis program to use for the analysis of the measurement data, depending upon the sample classification, measurement items, device type, and the device version, which are in the original data received.

Step S3: Next, analysis server 1 uses the analysis program selected to analyze the measurement data.

Step S4: Analysis server 1 creates working data that include analytical data and the aforementioned predetermined data, and transmits the working data to the reply address. This reply address is included in the original data. One set of working data may include analytical data on a plurality of test items. Alternatively, working data may be transmitted separately for each test item.

Analysis server 1 repeats the process of Steps S2 to S4 every time it receives original data.

(4-2) Charge process

Fig. 9 is a flowchart showing the flow of the charge process that analysis server 1 executes.

Step S11: When analysis server 1 analyzes and transmits the measurement data, the following charge process takes place.

Step S12: Based on the user ID included in the working data, analysis server 1 identifies the medical institution to be charged.

Step S13: Analysis server 1 refers to contract DB, and reads out the contract details of the medical institution to be charged. Next, analysis server 1 reads from user DB the actual service usage by the medical institution to be charged.

Step S14: Based on the test items in the working data, the service usage, and the contract details, analysis server 1 determines to which analysis service ID the transmitted analytical data correspond. For example, let us say the sample classification is blood, and the test items are APTT, PT, Fbg, and TTO. Based on the aforementioned service usage shown in Fig. 4 and the contract details shown in Fig. 5, with regard to user ID "U-Sysmex", the number of analyses of the three basic items (APTT, PT, and Fbg) exceeds the monthly maximum of 100 specimens. Thus, with regard to the transmitted analytical data on the three basic items, the analysis service ID is "C001". Further, with regard to TTO, the analysis service ID is "C002", regardless of the number of specimens.

Step S15: Analysis server 1 updates user DB 15. Specifically, the number of analyses of the identified analysis service ID is incremented. For example, in this case, the numbers of analyses of "C001" and "C002" are each increased by one. Analysis server 1 repeats the process of Steps S12 to S15 every time it transmits working data.

Steps S16 and S17: In addition, analysis server 1 calculates the billing amount for

each medical institution by adding up the total amount of charges for a certain period of time, for example one month, and executes a predetermined billing process.

(4-3) Billing process flow

Fig. 11 is a flowchart showing the flow of the billing process that analysis server 1 executes every predetermined period of time. In order to simplify the explanation, the billing process occurs every month in the following explanation.

Step S21: Analysis server 1 identifies a medical institution among registered medical institutions as the object for calculating the billing amount.

Step S22: Analysis server 1 refers to the user DB, and specifies one of the analysis service IDs written in the service usage as an object of calculation.

Step S23: Analysis server 1 determines whether or not the analysis service ID identified is included in the basic contract by referring to the contract DB. If "Yes", then analysis server 1 proceeds to Step S24. If "No", then analysis server 1 proceeds to Step S25 (discussed below), and calculates additional fees.

Steps S24, S25, S26, S27: When the analysis service ID is included in the basic contract and its number of analyses does not exceed the maximum amount (S24), analysis server 1 sets the fee for the analysis service ID as the basic fee (S25, S27). Conversely, when the analysis service ID is included in the basic contract and its number of analyses exceeds the maximum amount (S24), the additional fee is calculated by referring to the contract DB (S26).

Step S28: Analysis server 1 adds the calculated fee for the analytical service ID to the billing amount.

Steps S29, S30: Analysis server 1 calculates the usage fees for all the analytical IDs that have been used by repeating Steps S22 to S28, adds the usage fees to the billing amount, and determines the billing amount (S30).

For example, where a user's service usage for a particular month is as shown in the

aforementioned Fig. 4, the fee for each analysis service ID will be as follows. For the analysis service ID "BASIC", the basic fee is ¥15,000. For "C0001", the additional fee is ¥200 x 60 = ¥12,000. For "C0002", the additional fee is ¥450 x 37 = ¥16,650. Accordingly, the total billing amount is ¥43,650 per month.

Step 31: Analysis server 1 repeats the processes of S21-S30 and calculates the billing amount per month for all of the medical institutions.

Thereafter, analysis server 1 may execute a predetermined billing process as needed. For instance, such process includes issuing an invoice to each medical institution, and conducting a process for automatic withdrawal from the banks.

(5) Analytical results display example

Fig. 11 is a sample output of the analytical results output by output terminal 4. This is an example in which the coagulation curve and the analytical results of PT are displayed together with the coagulation curves and the analytical results of other four test items, for which measurement orders were made at the same time.

The analytical results not only display the coagulation time, which is the analytical data, but also, as supplemental information, the results of calculation items obtained by parsing the measurement data, and error messages and flagging messages obtained by monitoring.

<Other Embodiments>

(A) Fig. 12 is an example of the overall construction of an analyzing service providing system of another embodiment. In this example, WWW server 8 is provided instead of patient DB 7. Patient data at each medical institution is stored in this WWW server 8. Medical institution can refer to analytical results on patient's tests on a web page by accessing WWW server 8 with a browser.

In addition, not only analytical results of tests, but also other data that relate to patients can be stored on WWW server 8. For example, a web page can be created for each

patient, such test results, as well as medical history, medication history, accounting data and the like are shown on each patient's web page. Access to the web pages is controlled by password, user ID, or other types of authentication information.

(B) The billing system is not limited to the system discussed above. A variety of billing systems can be employed depending market needs and each medical institution's needs.

(C) The recording medium used to record the program that executes the above-described process of the present invention is part of the present invention. Here, as the recording medium, floppy disk, hard drive, semiconductor memory, CD-ROM, DVD, magneto-optical disk (MO) and others, which a computer is capable of reading from and writing to, can be included.

[Effects Of The Invention]

According to the present invention, it is easily possible to allow each medical institution to have testing capacity that is flexibly adapted to changes in the medical institution's needs. In addition, measurement device providers can perform their own devices more precisely.

[Brief Description Of The Drawings]

[Fig. 1]

A conceptual view of the configuration of an analyzing service providing system.

[Fig. 2]

A general view of the configuration of the analyzing service providing system according to a first embodiment.

[Fig. 3]

A functional block diagram of analysis server and measurement device.

[Fig. 4]

A conceptual view of the information stored on a user DB.

[Fig. 5]

A conceptual view of the information stored on a contract DB.

[Fig. 6]

A conceptual view of original data transmitted to analysis server from measurement device.

[Fig. 7]

A conceptual view of the working data transmitted to output terminal from analysis server.

[Fig. 8]

A flowchart showing the flow of the analysis process.

[Fig. 9]

A flowchart showing the flow of the charge process.

[Fig. 10]

A flowchart showing the flow of the billing process.

[Fig. 11]

An example of the output of the results of analyzing a physiological specimen (classification of white blood cell).

[Fig. 12]

A general view of the analyzing service providing system of another embodiment.

[Explanation Of The Reference Numerals]

1 Analysis server

2 Measurement device

3 Network

4 Output terminal

[Name Of Document] Abstract

[Abstract]

[Problem] To reduce the burden of purchasing measurement devices for physiological tests, and to simplify user support for measurement devices.

[Means Of Solution] Measurement of physiological test is performed with a measurement device 2 of a medical institution, while analysis of the measurement data is performed by an analysis server 1. Accordingly, measurement data is transmitted via a network 3 from measurement device 2 to analysis server 1. In addition, analytical results are transmitted via network 3 from analysis server 1 to an output terminal 4. The service provider provides measurement device 2 to the medical institutions free of charge, and in return collects a usage fee for the analyzing service from the medical institutions.

[Selected Figure] Fig. 2